

Student 4: High Achieved

NZQA Intended for teacher use only

Because of student's height it would be beneficial for him to get a longer club (if possible) this would not only lead to a more comfortable body position, but the extra club length would mean he had a longer lever. Generally speaking a longer lever will result in greater speed and hence resulting in the ball travelling a greater distance. This is because the club will travel over a longer distance (arc), with the club head having more time to gain speed. By the time the club head makes contact with the ball it has generated maximal speed to then make the ball go further. This means he can get more torque through the club (force multiplied by distance) and thus transfer more energy through the ball, meaning the ball would go further for the same amount of effort put in.

4

...the momentum for the shot is transferred through the legs and hips, the larger muscles (gluteals, hamstrings and quadriceps) through to the smaller ones in the arms and wrists (biceps, triceps, wrist extensors and flexors) as dictated by force summation. Maximum force will be generated by each body part/muscle group contributing to its full potential before the next muscle group then contributes. This is known as sequential summation of forces.

1

By having his body slouched the student is limiting himself to the amount of momentum he can transfer to the ball as the line his body follows will be unnatural and not correct in terms of the optimal golf swing.

...by contacting the ground the student has also reduced the amount of energy that he can transfer to the ball, as it is being lost in the ground. Because momentum is defined as mass multiplied by velocity by hitting the ground before contacting the ball the student has greatly reduced the amount of momentum he is able to pass on to the ball, this in turn will mean the ball does not travel as far

...needs to work on in relation to force summation is more related to his finishing off of the stroke. By finishing the stroke properly the student should find he is able to transfer more of the momentum he gains through the forward swing into the ball as, by continuing the stroke into the 'follow through' more momentum is conserved through the motion. Because more velocity is maintained at the moment the ball is contacted this will mean the ball will go further. The easiest way to achieve this is to continue the motion right through to the finish position, as shown in the ideal. This will result in a much more efficient shot and will probably mean the ball goes straighter.

4

3

...evident fault is the swing. They do not use muscles in the correct sequence *therefore by applying the theory of sequential summation of forces, are* limiting the force that can be generated into the hit. The largest muscles must be used first through to the smaller muscles. This means my performer needs to rotate at the trunk, using leg (quadriceps and hamstrings), hip (gluteals and hip flexors) and trunk muscles (abdominals and erector spinae) to generate the initial force...

2

...because they do not shift their weight and rotate most of the power is only coming from the smaller muscle in the arms (biceps and triceps), thus minimising distance gained toward the target (team member). They are concentrating on swinging down quickly with the arms rather than focusing on power initially being generated from core muscles

...needs to rotate hips, uncoil chest, rotate shoulders, then arms move in an arc through to finally smaller movements of the wrist...

3